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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,036	08/20/2003	Yu-Seock Yang	P-0576	5075
34610	7590	12/19/2005	EXAMINER	
FLESHNER & KIM, LLP			LEADER, WILLIAM T	
P.O. BOX 221200			ART UNIT	
CHANTILLY, VA 20153			PAPER NUMBER	

1742

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,036

Applicant(s)

YANG ET AL

Examiner

William T. Leader

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites "a fifth step of making the power connection portion and the external power source to be electrically short". The meaning of this limitation is not clear. This step appears to be described in paragraph [0060] of the specification. In this paragraph it is stated that "the first power connection portion 72 is covered with the photoresist 70 to make it electrically short." The word "short" is defined as "having little length" (Merriam Webster's Collegiate Dictionary, 10th edition). It is not apparent how covering connection portion 72 has any effect on the length of the circuitry. In an electrical context the word "short" is sometimes combined with "circuit". "Short circuit" is defined as a connection of comparatively low resistance accidentally or intentionally made between points on a circuit between which the resistance is normally much greater" (Merriam Webster's Collegiate Dictionary, 10th edition). This definition does not appear to apply to the step disclosed by applicant since the resistance is not made lower. It is also noted that while the specification mentions making the first power connection point 72 electrically short, the specification does not appear to describe making the external power source to be electrically short. It is not apparent how this limitation should be

interpreted. A similar limitation appears in independent claim 9. Paragraph [0067] of the specification includes a description which is essentially the same as that of paragraph [0060].

4. Claims 2 and 10 recites the limitation "coating an electrolyte layer on the surface of the substrate for connecting between the power connection portion and an external power source." The meaning of this limitation is not clear. The term "electrolyte" has a recognized meaning in the field of electroplating. As explained in the text *Electroplating* by F. A. Lowenheim, the term electrolyte has two meanings. The first is the solution containing the ions of the material to be electrolytically deposited; the second refers to the substance which when dissolved in a solvent gives rise to a conducting solution." The use of "electrolyte" in claims 2 and 10 does not correspond with either of the accepted meanings of the term. Paragraph [0020] of the specification states "In the plating method for a printed circuit board of the present invention, the electrolyte layer is formed through an electroless plating method, and the electrolyte layer has a thickness of 0.3-0.7 $\mu$ m." An electroless plating method conventionally deposits a metal layer. Thus, applicant's use of the expression "electrolyte layer" appears to be contrary to the normally accepted use of the term.

5. Because of the lack of clarity of the expressions "electrically short" and "electrolyte layer" the scope of the recited steps using these terms cannot be determined from either the standard definition of the terms recited in the claim or the description of the terms in the specification. Consequently, a meaningful comparison of the claims with the prior art is not possible.

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6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As explained above, the expressions "electrically short" and "electrolyte layer" not described in the specification in such a manner that that the invention can be clearly understood. The specification appears to make no mention of how the external power source can be made electrically short.

8. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the step of covering a power connection opening with a resist, does not reasonably provide enablement for making the power connection "electrically short". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. The only disclosed manner for making a power connection "electrically short" in the context of the invention is to cover a power connection opening with a resist. See paragraphs [0060] and [0067] where power connection openings 72 and 74 are covered with photoresist 70.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Swamy et al patent (5,567,295) discloses a method for using a common electrical


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connector for electroplating a plurality of features on a circuit board, and the removal of the connector after electroplating has been completed. The Asai et al (6,376,049) and Bhatt et al patents (6,436,803) disclose multi-step methods for electroplating printed circuit boards.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William Leader  
December 6, 2005

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700